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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,697	06/23/2003	Shuichi Takeuchi	P23520	5736

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EXAMINER

ALLEN, DENISE S

ART UNIT PAPER NUMBER

2872

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/600,697

Applicant(s)

TAKEUCHI, SHUICHI

Examiner

Denise S Allen

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/23/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION***Drawings***

The replacement drawings were received on June 23, 2003 and are acceptable to the examiner.

Claim Rejections - 35 USC § 103

Claims 1 – 3 and 5 – 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa (US 4,796,965) in view of Okuno (US 4,578,688).

Regarding claim 1, Ishikawa teaches a scanning optical system (Figure 1) comprising: a deflector (reference 10) having a reflection surface (reference 16) pivoting about a rotation axis (reference 12), said reflection surface deflecting a light beam (references 200 and 210) toward an object surface (reference 34) such that said light beam is scanned over the object surface in a main scanning direction; a mirror system (references 24 and 26) arranged to reflect back said light beam deflected by said reflection surface so that said light beam travels toward the object surface after being deflected twice by said deflector (Figure 2), the mirror system reflecting back said light beam such that a projection of said light beam on an auxiliary scanning section is incident on said reflection surface for a first time at a first incident angle (reference α) different from a second incident angle (equal to references γ) at which said projection of said light beam is incident on said reflection surface for a second time, said auxiliary scanning section being perpendicular to said main scanning direction. Ishikawa does not teach a blocking member disposed between said deflector and the object surface, said blocking member preventing an unwanted light flux from striking the object surface, the unwanted light flux traveling from said deflector toward the object surface after being deflected by said deflector only once.

Okuno teaches a scanning optical system (Figure 3) with a deflector (reference 3), an object surface (reference 6a), and a blocking member (reference 8a) disposed between said deflector and the object surface, said blocking member preventing an unwanted light flux from striking the object surface, the unwanted light flux traveling from said deflector toward the object surface after being deflected by said deflector only once. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the blocking member of Okuno in the scanning optical system of Ishikawa in order to eliminate any ghost images (Okuno column 4 lines 13 – 17).

Regarding claim 2, Ishikawa teaches the deflector includes a plurality of reflection surfaces (reference 16), and wherein said mirror system reflects back said light beam such that said light beam is deflected twice by the same one of said plurality of reflecting surfaces (Figure 1).

Regarding claim 3, Okuno teaches the blocking member is disposed so as to prevent the unwanted light flux from striking the object surface shortly before the light beam enters a scanning area defined on the object surface (Figure 3 shows that reference 8a' is slightly larger than the light beam that defines the scanning area (reference Aa)).

Regarding claim 5, Okuno teaches the blocking member is an elongated member extending in parallel to said main scanning direction (see Figure 3).

Regarding claim 6, Okuno teaches the blocking member is an opaque member (column 4 line 17).

Regarding claim 7, Ishikawa in view of Okuno does not teach that the blocking member is a mirror reflecting the unwanted light flux in a direction other than toward the object surface.

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It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the opaque member of Okuno with a mirror in order to prevent the blocking member from heating up due to the absorption of the unwanted light flux.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa in view of Okuno and further in view of Saito.

Ishikawa in view of Okuno teaches a scanning optical system as described above.

Ishikawa and Okuno does not teach an optical sensor that detects the position of the light beam deflected by said deflector to determine the timing of initiating modulation of the light beam, wherein said blocking member is disposed so as to block the unwanted light flux when the light beam is striking said optical sensor.

Saito teaches a scanning optical system (Figure 3) with an optical sensor (reference 10) that detects the position of the light beam deflected by said deflector (reference 5) to determine the timing of initiating modulation of the light beam. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the optical sensor of Saito in the scanning optical system of Ishikawa in view of Okuno in order to control the starting position on the object surface (Saito column 3 lines 15 – 25).

Conclusion

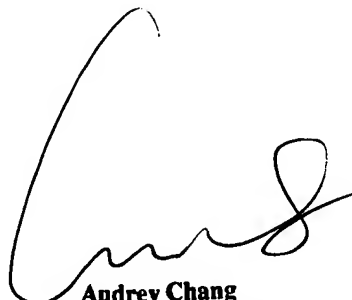
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise S Allen whose telephone number is (571) 272-2305. The examiner can normally be reached on Monday - Friday, 9:00am - 5:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Denise S Allen
Examiner
Art Unit 2872


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